PHOTOGRAPHY BRANCH

Strategic Projections

1982 - 1987

SECTION I

1.1 INTRODUCTION

This paper will identify present and future production goals of the Photography Branch. It also intends to evaluate present work requirements and the systems presently used to meet these requirements. It will also project anticipated growth rates for the Branch, and those measures required to adequately support these future needs.

1.2 MISSION OR SCOPE

The Photography Branch functions as a companion operation to the Printing Operation in the Printing and Photography Division.

It's mission is to provide photographic support to the Division, the Office of Logistics, the Central Intelligence Agency and to other member agencies that comprise the Intelligence Community. This support function embraces a wide range of Photo type operations that produce a variety of Photo products. These Photo products in turn support the on going needs of all Governmental elements mentioned above.

1.3 STRUCTURE

There are five separate production areas and two unique non production functions within the Photography Branch. These areas are:

Production:

1. Computer Output Microfilm
2. Microform Source Document
3. Color Lab
4. Black and White Photo
5. Design and Presentation

Non Productive:

1. Administrative Staff
2. Quality Control

Each of these production units operates in an independent mode and is responsible for the production of photo type products that are unique to its own area. The production facilities of these separate operations are staffed with personnel who are trained in the skills necessary to support the production needs of these specific operations.

1.4 GOALS

The success of our mission is therefore encumbent on the total success of all production areas; however, changes in individual production requirement in any of these separate functions has little or no effect on the production capability of other branch operations.

This paper will present each of these production areas as separate entities but when viewed in toto represent the overall facility known as the Printing and Photography's Photography Branch.

SECTION II COM

2.1 OVERVIEW

The COM Operation in the Photography Branch is treated as a separate microform function. This has become necessary due to the complexity of this system and the need for a select work force that will remain dedicated to this operation. Although the output product is similar to the product produced in the source document area, there is absolutely no similarity in the mechanics required to produce these two products. Training requirements for COM are intense and it has been proven that only those employees who have a high aptitude for computer type work will be successful candidates. Presently there are five technicians working in the COM area. These employees are responsible for COM production, care and maintenance

of the equipment and all ancillary administrative chores needed to support Agency customers. COM systems are relatively new microform systems and due to this newness, the real potential of the systems has not yet been realized. Until recently COM input was totally dependent on the magnetic tape services provided by the Office of Data Processing. However, with the recent acquisition of the Dicome 48C Graphic COM Recorder, the system still reads all input tapes generated in the Office of Data Processing and can also read data from floppy disk that are generated on a Dicomedia Graphic Terminal

2.2 PROJECTION

These COM systems, albeit new, are first rate production sys and should continue that way indefinitely. There are, however, many changes expected in these systems and most of these changes are based on the following data: these systems will be the major output devices for computer modeling, simulation application and animations generated in the ODP Ruffing Center. The products generated on the system will be 105mm A/N Fiche or 35mm color sl or a 16mm color movie. These unique processes are presently av on the system but are not fully in production. The projected g for COM also includes the acquisition of an additional A/N COM systems that will output to the new Video Disk Format, or the tional film production.

2.3 ESTIMATION OF PROJECTIONS 1982-1987

If production continues to grow at the same rate as in years the following changes will be needed:

2.4 Space Required: Two times the space now used based on equipment in item 2.6.

2.5 Personnel Required: March 1982 - one additional person trained on Shift 1 to function on Shift 2.
Late 1983 or Early 1984 - two people to staff shift 3.

2.6 Equipment Required: The source of increased production demands are: Graphic Color COM Products, the O.D.P. Datalink, and a large A/N project with a target date of March 1982. This increase might well justify a third COM system dedicated to Alpha-Numerics only. This additional system should be capable of generating 16mm, 35mm, and 105mm products.

Unfortunately, systems such as the Auto COM which we are presently using are good for the qucik turn around of medium size priority jobs and for tests related to new applications; however, maintenance on the Auto COM is an eternal process. Presently, in order to maintain an acceptable quality fiche, we must change the Auto COM chemistry every 800 fiche or at least twice a week. The Auto COM's product (cut fiche) then requires more time to duplicate the roll film.

The proposed new COM system would use the roll film mode of operation and would boost the productivity and quality of the product output. Unfortunately, all support equipment we presently have is nearly worn out. If we are to keep pace with future production demands we will need:

1. COM system A/N (all formats).
2. 16mm duplicator
3. 105 duplicator
4. Processor (both pos and neg)
5. Fiche cutter
6. Cartridge loader/reader

2.7 By 1983

Replace Auto COM

2.8 By 1984 in order to conform with the design of this section and function as an independent module that will provide the quickest response to optimum quality products to COM users, this additional equipment will be needed:

1. Small Color Processor (E6)
2. 35mm Color Duplicator
3. Slide Mounter

2.9 By 1987 replacement or expansion of Graphics Systems, Digital output to video Disk.

SECTION III MICROFORM SOURCE DOCUMENT

3.1 OVERVIEW

Present and past production requirements in the Source document microfilm area, demand that a work force ranging from fifteen to eighteen employees be available to meet daily production request. This number, although not static has remained constant over the past ten years. The primary reasons for this sizeable work force are the ancient filming methods used in the source document filming process.

Unfortunately, in the last twenty years, there have been few improvements made in either the equipment or procedure used in the microfilming process. When a manager wished to increase production in these areas he simply hired additional help. This, of course, was the only available remedy, but it was certainly not a cure and it is the least desirable method of solving this problem.

Employees hired to work in the Photography Branch are usually assigned to the micrographic area as their first station. They are then subsequently promoted to higher and more responsible positions thus creating a never ending need for training a new group of microform workers. Consequently, the technical level of development is never raised to a degree where absolute professionalism could introduce innovative changes that would eliminate the constant need for the abundant use of human resources.

3.2 PROJECTIONS

Unfortunately, there is little hope for a dramatic change in the very near future, but there is a glimmer of hope for some major improvements in the distant future. The hope for improvements rest with the advent of several electronic advances in video recording methods and laser technologies that will dramtically increase the data storage capabilities of these systems. These systems, when available, should open a new era in capturing document data for both storage and retrieval. It is reasonable to assume these systems will demand a complete reassessment of the entire source document micrographic process. This reassessment may require a shift from the dependency on a film products to the new video disk - laser type application. It is impossible, at this time, to forecast future expenditures for these systems, because there is no way to accurately predict what type reception these newer technologies will receive. Therefore, staffing for the micrographic area in the next five years will be in direct proportion to the affect of two major events. These events are, the possible consolidation of Agency Micrographics and the success of newer technologies that will convert hard copy into a digital format. Either of these events will probably reduce the ongoing need for additional human resources, but these changes will most certainly increase the need for additional finances.

3.3 SUMMARY

Existing microform production equipment and procedures are somewhat antiquated and in most situations do not lend themselves to a timely and cost-efficient means of reproducting Agency source documents. Unfortunately, the microfilm industry is not producing any automatic equipment or methods at this time. Therefore, in the immediate future, we must try to update existing equipment and

replace this equipment with newer models as they become available.

3.4 FUTURE PLANS FOR EQUIPMENT

Equipment to be considered in the next one to four years:

1. Documate II microfiche camera system
2. 16mm High-speed fully automated system for filming source documents
3. Automation of film inspection and verification
4. 16/35 MRG camera system/blue print and drawing filming on aperture cards
5. 105mm fiche self contained camera/processor units
6. FBIS project on line with the COM system

3.5 ITEMS OF INTEREST FOR THE FUTURE

1. Explore the possibility of converting some microfilm projects to 16mm in order to expedite their timely completion.

2. Seek the expertise of Census Bureau in the designing and manufacture of high-speed camera equipment.

3. Explore the possibilities of Digital and Video disk replacement for existing equipment.

3.6 CONCLUSION

The enhancement to existing equipment and procedures, and the acquisition of future sophisticated systems, will provide better support to the Agency's ongoing source document program.

SECTION IV COLOR LAB

4.1 OVERVIEW

The Color Section's most recent history depics an area that has been, and is currently, undergoing dynamic change. This area over the past few years has been deluged with an ever expanding work load. The staffing in this department has been expanded to accommodate this increase and there is a possibility if this growth continues more personnel may be needed. In the past two years this operation has been working on a three shift basis. The staffing for these additional shifts was provided by the Color Lab itself. There are however,

two additional personnel assigned to the lab and are presently training on the day operation.

4.2 PROJECTION

The future for the color lab looks bright. This optimistic view of the future can be attributed to the many innovative and improved procedures being developed in the market place. These newer methods and products will further enhance this section capability and will insure the Agency of a first rate support effort

4.3 Space Required: Sufficient now and with renovation completed, gained space will handle needed new equipment.

4.4 Personnel Required: Day Shift - 8
2nd Shift - 2
3rd Shift - 2

4.5 1982 - MC Digital Color Printer for 8-S
2-roll paper easels 8" to 11" inch wide paper
2-4x5 color enlargers
1-E-6 film processor
1-table top slide mounter (Tischer)
1-roll paper easel 20x24 Hope
1-large vacuum paper easel for 8x10 enlarger (40-60)

1983 1-C-41 Hope Film Processor
1-8x10 copy camera (11x14)
1-Treboflex Devere Enlarger & lens (507)
1-Type R reversal print processor
1-8x10 copy camera and adapter means to expose 4x5 negatives from 8x10 transparencies.

1984 1 roll paper cutter (Hope)

1985 Video Color Negative Analyzer

1986 51 inch Hope Paper Processor (model 144)

4.6 1982 MC Digital Color printer for 8-S - production = less turn around time

2-roll easels beyond repair, need replacement

2-color enlargers, now antiquated

2-color negative translators for above enlargers same model

1-E-6 film processor-projected and known increase in requirements, back up and replacement

1-Slide Mounter, back up and to be used when present one is renovated or P.M.

1-roll paper easel 20x24 - increase in this size print, cheaper to buy roll paper

1-40x60 print vacuum easel - better quality prints in focus versus using push pins now. Use less paper as it moves now during exposure causing remakes

4.7 1983 1-C-41 Hope Film processor, possibly with blender, replacement or back up

1-11x14 copy cameras - present camera lens is not best quality, backs are worn out, as of now on its way out.

1-31 inch Hope paper processor, replacement for 24 inch processor, also more projected need for size

1-Friboflex Devere Enlarger - 4 lens color corrected for custom printing, especially projected color printing for laser system upstairs

1-type R Reversal print processor, elimination of making costly internegatives better quality, faster turn around time

4.8 1983-84 1-8x10 Horizonal Enlarger

1-copy camera or adapter means to expose 4x5 negatives from 8x10 transparencies

4.9 1984 1-roll paper cutter-replacement

4.10 1985 Video Color negative Analyzer-replacement

4.11 1986 51 inch Hope paper processor-replacement

4.12 1987 Technet - continuity of in plant knowledge computer programs for process and printer computations. The only way to go for quality control.

SECTION V BLACK & WHITE

5.1 OVERVIEW

The Black and White production area is divided into separate produciton areas. These two areas produce photo products that differ in both quality and quantity. In the first instance, the roll easel section is responsible for the production of large quantities of good quality of 5x7 and 8x10 photo prints. The other area, the custom print section, produces single quantities of photo prints and film products. These lesser quantities are not a reflection on this sections ability to produce large numbers of photo products but indicates this sections responsibility to produce the highest quality photo print possible.

These two areas, historically could be considered the nucleus of the Photography Branch. These areas over the past several years have maintained a level rate of production that was able to meet or exceed all production requirements levied on it. This production effort was accomplished mainly through the diligent efforts of the personnel assigned to these areas and partially through the acquisition of several high speed photo printers.

5.2 PROJECTION

Presently, although there is a continuing need for this Black and White service, there are some indications that Photo Printing in the black and white medium will eventually give way to color print products or some electronic camera storage device. I do not expect a complete transition during this projection period but there should be a steady erosion of this sections product output.

5.3 REQUIREMENTS

Requirements for black and white photographic products have diminished to some extent in recent years. This is the part due to advanced technology in the areas of quick-copy and in color photographic processes. However, there is still a need for black and white photography and this need should continue into the foreseeable future.

5.4 EQUIPMENT

In the immediate future we should update the following equipment.

A. Near Future

1. replacement for 8x10 copy camera
2. large format enlarging system
3. larger and faster film processors
4. updated contact printing system
5. 70mm camera/process units (digital)

B. Down the Road

1. screen print scanner camera
2. computerized black and white printer processor units
3. hi-speed copying systems

SECTION VI DESIGN AND PRESENTATIONS (Audio Visual)

6.1 OVERVIEW

The design and presentations group has a compliment of seven professional graphic Artists and three Audio Visual technicians. Although there is a marked diversity in the professional make up of this group future programs dictate that a progressive amalgamation will occur and an interdependency on related skills will promote a more professional service then is presently available.

Financial Resources:

The recent acquisition of the Dicomedia color graphics terminal for Design and Presentation area is presently in an embryonic stage. This system will eventually provide electronic graphic support to all Agency components. This system will also compliment the needs of both the artist and technicians in the development of Audio Visual slide shows. In this area the financial requirements will be in direct proportion to growth of the audio visual production effort. This combined system will most likely require software enhancements only.

The financial requirements of Audio Visual area will most likely be more extensive. This area, unlike the Design and Presentation area is dependent on equipment and systems that are in a continual state of change. These systems, for the most part, are linked to the electronic era and the future expense incurred will reflect the need to meet faster turnaround requirements of a more sophisticated product.

6.2 Space Required

D&PC should be able to maintain the space we now occupy without additional requirements. New organizational ties with the AVCC, however, may call for a redefinition of the utilization of existing special system. In addition, the Dicomedia II system may expand in physical or activity size to command more space for its function.

6.3 Personnel Required

The total number of personnel for D&PC is not expected to change during this projection period. However, two new designers will probably need to be recruited and hired due to expected retirement, attrition or transfers prior to 1987.

6.4 Equipment Required

Replacement of existing equipment by 1987 include:

1. the Compugraphic 7200 phototypesetter; and the Itek 430 production camera

New equipment for which D&PC will probably have a need are:

1. An AV system, including programmer, dissolves, projectors, etc. to handle 15-projector presentations;
2. A self-contained, portable AV presentation system;
3. A stereo sound system for existing and future AV presentation equipment;
4. Equipment to modernize the total office environment and function;
5. A Forox camera to offset our mounting requirements for production (Cost and operation to be shared within PB);
6. An Audio Video recorder for customer review of slides, slide presentations, or computer animation.

6.5 PROJECTION

1983 D&PC should have an increased proficiency at AV presentations to include 15-projector capability, efficient portability and improved sound reproduction. With AV/CC personnel being used for out-of-Division/ office operations; D&PC designers should be cross-trained on AV/CC equipment to backstop presentation requirements. Additional PB personnel should also be competent on D&PC's Dicomedia II to backstop increasing slide demand. (PB personnel with some graphic or commercial training.) D&PC should have completed a microfiche system of storing slide images.

1984 D&PC will probably need complete replacement/overhaul of Itek 430

1985 The Decomedia II should be updated or joined by a duplicate system to meet estimated customer demand.

1987 Comugraphic 7200 will probably need complete replacement or overhaul.

6.6 AUDIO VISUAL

Presently, the A/V Center is expanding it's operation in regards to 1/2" video replication. On order are two additional slave units, one Beta and one VHS. These additional machines will enable us to go directly onto the 1/2" format from a 1/2" format. Within a three year period our 1/2" system will be as large as the 3/4" (six slave) U-matic system. By 1983 it will take seven UHS

and seven Beta machines to make six video copies. At that time, space available and available manpower could present a problem.

By 1983, the optimum number of personnel required for the A/V Center would be five. The following is a list of new services provided and some of the new equipment required to meet these requirements.

6.7 Present Equipment status 1981

1. Technics Professional Series Turntable
2. Two Technics Cassette Decks Professional Series
3. Three-JBL 4301 Speaker Monitors Professional Series
4. Microphone for Narration Booth Professional Series

Although we have a professional Audio Sound Department for film. the Audio Portion of Audio Cassettes generation is not of top quality. With the purchase of the above equipment, the A/V Center would have a complete professional Audio-Sound Department.

6.8 PROJECTIONS

1982 1. Sony Players - 2860 3/4" U-matic (Pal & Secam)
2. 25" monitor Barco Crm-50
3. Sync Generator
4. Topaz Frequency Converter (Converts American to foreign 50 cycle)

This equipment will enable the A/V Center to provide In-House Kibescoping for Foreign standard video tapes. This will eliminate the required use of NFAC/OCR's facilities when Kinescoping is required.

1983 4. 16mm Color Film Processor

This system would provide In-House processing capability and would eliminate the need for external laboratory processing.

5. Two betamax machines, 1/2"
6. Two VHS machines, 1/2"

7. Magnasync Moviola - Videola V-1000

This unique machine (6) gives us film-to-tape transfer with editing capabilities. We are presently using the Byron Lab for film to tape transfers.

6.9 The ability to project requirements beyond this point is extremely difficult. However, technical changes in this area will provide major advances in the systems presently used. Improvement in present systems and newer methodology will be the order of the day.

SECTION VII QUALITY CONTROL

7.1 Space Required: Same

7.2 Personnel:

Senior quality control; assistant quality control; Chem Mix technician; Photo Lab Maintenance technician.

7.3 OVERVIEW

The senior quality technician should test all chemistry, both in preparation and in its use on a regular basis. Presently this is not done because most of the senior quality control's technicians time is spent troubleshooting problems and helping to maintain the daily operations in the lab. The senior quality control tech should also be responsible for all research and development that will help the photo lab to maintain its modern approach in the production of photo products. In order to carry out these tasks, the quality control staff should be staffed with a senior tech, and an assistant would be responsible for all Chem mix functions and would also help the senior quality control tech in monitoring all equipment. This person will work full time in this position and will not be assigned to other unrelated duties within the photo lab.

The 4th person on the quality control staff will be a photo lab maintenance technician. This person must be given the responsibility for full time maintenance work in the photo lab. This person will attend to all mechnical electrical problems and will also have access to all equipment in the Divisions maintenance shop. This person will work closely with the senior quality control tech in the design and update of work areas and will also help eliminate the small problems that are difficult to cover.

7.4 EQUIPMENT TO BE PURCHASED

1982 - 1983

Install the datalogger 2000. We have had this system for over three years and it has never been installed.

Two transmission Densitometers

Two reflection Densitometers

One portable sensitometer for COM

One Hope 151 Color Print Processor to replace the Hope 110, presently we have no backup!

Replace Allen F-20R with a Versamst. (age)

Replacement for Allen F-30 (age)

Replace houston mixing and holding tanks for Allen F-20R

Replace Itek Camera Processor with a newer model (age & wear)

New motors for Silver Recovery Unit (age & wear)

Sludge recovery tanks for color, COM, and copy center

Fiche Printer

1984

New H20 still

Two portable PH meters

One IR scope

GENERAL BRANCH OVERVIEW

Projects, Photography Branch 1982-1987

A. Space Required

With the completion of the Color Section renovation expected during 1982, this portion of the branch will have the required space and facilities to meet expected requirement during the time frame 1982-1987 and beyond. This renovation will also provide sufficient room for expansion in other areas that are expected to grow. The relocation and streamlining of equipment and methods in the Graphics Section brought on by the Color Section renovations, will provide sufficient space for the foreseeable future. Sufficient space has been allocated for the Litho process camera. This camera will provide an increase in production capability as well as improved quality of both black and white and color products. The final phase of updating in the Graphics area will be the replacement of the Saltzman 8x10 enlarger. This system will be replaced by a precision horizontal large format enlarger, and will be located in the same general space as the old enlarger.

Past changes and modification to the Microforms Section have increased the utilization of allotted space. Further utilization is planned as improved productive methods and equipment are developed; only then will it become necessary to make major construction changes.

The Audio/Visual Communications Section, which is gradually increasing and diversifying its capabilities, is now the most cramped section within the Branch. As changes occur additional space will be required. Space requirements will be for electronic type production rather then the conventional darkroom and wet processing facilities.

The COM Center facility located in Headquarters building is facing increased production requirements, and there are current plans to enlarge this working area. In addition to the requirement for more space, there is also a firm need for cleaner working conditions. This type of improvement will require high efficieny air filters and precise temperature and humidity controls.

CONCLUSION

There is every reason to believe, Photo product output as it is known today will continue at present levels over the next two years. Beyond this point, there are many anticipated changes. These changes will also require a continuous reassessment of work procedures and personnel training. The positive side of this projection is the possibility of producing more and better products with fewer people. The negative side of the projection is the extensive outlay of money to obtain the newer equipment. My personal projection is; cash outlay for Capital equipment will triple by the year 1987. At this time, however, the Branch should be able to reduce its personnel staffing by 20%.